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Systematics of yields of strange hadrons produced in heavy-ion collisions at a few AGeV

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After four decades of measurement of strange hadrons produced in nucleus-nucleus collisions we are now at disposal of over 100 yields of $K^{\pm,0}$, ϕ and Λ. It's a good time to systematize them as function of available energy, $\sqrt{s_{NN}}$ and number of participant nucleons, $\langle A_{\rm part}\rangle_{\rm b}$.

However, as different collaborations used different models for estimations of $\langle A_{\rm part}\rangle_{\rm b}$, considerable systematic biases were generated. Therefore, we applied an unified Glauber Monte Carlo approach to all the dataset.With that, we provide the parametrizations of yields with covariance matrices [1]. We also studied the behaviour of $\langle A_{\rm part}\rangle_{\rm b}$ with $\sqrt{s_{NN}}$, which may carry interesting hints on the strangeness production mechanism.

We also found that for a benchmark point (Ar+KCl at $\sqrt{s_{NN}}$ ~2.61~GeV), in terms of practical use, our parametrization currently provides the best predictions of yields comparing to those from public versions of tested transport models.
This encouraged us to present predictions of strangeness yields from Ag+Ag collisions
at $\sqrt{s_{NN}}$ = 2.4 and 2.55 GeV (HADES), STAR data from Au+Au at 3 GeV and
future CBM data from Au+Au collisions at lower energies.

[1] K. Piasecki, P. Piotrowski, Eur. Phys. Jour. A {\bf 59}, 272 (2023),
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